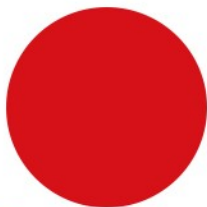


# AVERAGES & AGES

WELCOME ALL

SHABANA



# TOPICS



- BASIC NOTATIONS
- ADD / REMOVE - ITEMS
- REPLACEMENT
- AVERAGES WITH AGES
- AGES WITH RATIOS
- FRAMING EQUATION WITH YEARS

# BASIC NOTATIONS & AVERAGE OF DIFFERENT GROUPS

- Class A has 50 students scoring average marks of 45 and class B has 45 students scoring average marks of 50. What is the average of both classes together?

# BASIC NOTATIONS & AVERAGE OF DIFFERENT GROUPS

- Amrita buys 30 kg of sugar at Rs. 40 per kg and 60 kg of sugar at Rs. 20 per kg.  
What is the average price?

# BASIC NOTATIONS & AVERAGE OF DIFFERENT GROUPS

- The average age of students in section A of 40 is 10 years and the average age of students in section B of 30 is 12 years. Find the average age of students in both the sections.
- a. 10.75
  - b. 10.25
  - c. 10.85
  - d. NOTA



# BASIC NOTATIONS & AVERAGE OF DIFFERENT GROUPS

- The average weight of 17 girls is 20 kg and that of 23 boys is 22 kg. Find the average weight of the class.
- a. 20.15
  - b. 21.15
  - c. 22.25
  - d. 23.2



# BASIC NOTATIONS & AVERAGE OF DIFFERENT GROUPS

- The average weight of a group of 150 students in a class is 60 kg. If the mean of weights of all the 50 male students in the class is 70 kg, then the average weight of 100 girls in the class is:
- a. 55
  - b. 60
  - c. 45
  - d. 50



# ADDITION / REMOVAL OF ITEMS

Average of new items added

$$A \pm (1 + N/n) x$$

Average of items removed

$$A \pm (1 - N/n) x$$

$A \longrightarrow$  Original Average

$N \longrightarrow$  Original number of items

$n \longrightarrow$  Number of items added or removed

$x \longrightarrow$  by which the average is increased or decreased



## ADDITION / REMOVAL OF ITEMS

- The average age of 40 students in a class is 15 years. When 10 new students are admitted, the average is increased by 0.2 year. Find the average age of the new students.
- a. 15.5
  - b. 16
  - c. 16.5
  - d. NOTA



## ADDITION / REMOVAL OF ITEMS

- The average salary of 15 teachers is Rs. 4500 per month. Three teachers left the school and the average salary of the remaining teachers dropped by Rs. 175. Find the total salary of the teachers who left the school.
- a. 5200
  - b. 7400
  - c. 11600
  - d. 15600



## ADDITION / REMOVAL OF ITEMS

- There are 50 boys in a class. Their average weight is 45 kg. When one boy leaves the class, the average reduces by 100 grams. Find the weight of the boy who left the class.
- a. 45.8 kg
  - b. 46.8 kg
  - c. 48.9 kg
  - d. NOTA



# REPLACEMENT OF ITEMS

For N items in a group,

Sum of new items added – Sum of new items removed = +/- Nx



# REPLACEMENT OF ITEMS

- When a man weighing 80 kg is replaced by another man in a group of five persons, the average weight decreases by 3 kg. What is the weight of new man?
- a. 62 kg
  - b. 63 kg
  - c. 64 kg
  - d. 65 kg



# REPLACEMENT OF ITEMS

- The average weight of 15 students in a class is increased by 1.5 kg when one of the students weighing 40 kg is replaced by a new student. Find the weight of the new student.
- a. 62.5 kg
  - b. 63.5 kg
  - c. 64.5 kg
  - d. 65.5 kg



# REPLACEMENT OF ITEMS

- The average weight of 8 person's increases by 2.5 kg when a new person comes in place of one of them weighing 65 kg. What might be the weight of the new person?
- a. 80
  - b. 83
  - c. 85
  - d. 87



# REPLACEMENT OF ITEMS

- When a person weighing 68 Kg is replaced by a new person, the average weight of 10 persons increases by  $1\frac{1}{2}$  kg. What will be the weight of the new person?
- a. 80
  - b. 83
  - c. 85
  - d. 87





# AGES AND AVERAGE

- The average age of husband, wife and their child 3 years ago was 27 years and that of wife and the child 5 years ago was 20 years. The present age of the husband is:
- a. 35 years
  - b. 38 years
  - c. 39 years
  - d. 40 years



# AGES AND AVERAGE

- Five years ago, the average age of P and Q was 15 years. Average age of P, Q and R today is 20 years. How old will R be after 10 years?
- a. 30 years
  - b. 23 years
  - c. 30 years
  - d. 27 years



# AGES AND RATIO

- The present age of Mr. Sanyal is 3 times the age of his son. Six years hence the ratio of their ages will be 5:2 respectively. What is the present age of Mr. Sanyal?
- a. 72 years
  - b. 60 years
  - c. 58 years
  - d. 54 years



# AGES AND RATIO

- Six years ago Jose was twice as old as Joseph. The ratio of their present age is 9:5 respectively, what is the difference between their present ages?
- a. 20
  - b. 24
  - c. 27
  - d. 25



# COMPARISON OF AGES

- A's age 6 years back was half of the total of B and C's present ages. If C is 2 years older than B, what is A's age at present?
- a. 20
  - b. 24
  - c. 27
  - d. CBD



# COMPARISON OF AGES

- In 10 years, A will be twice as old as B was 10 years ago. If A is now 9 years older than B, then present age of B is
- a. 35 years
  - b. 38 years
  - c. 39 years
  - d. 40 years









# PRACTICE PROBLEMS



- The average of 9 numbers is 30. The average of first 5 numbers is 25 and that of the last 3 numbers is 35. What is the 6th number?
- a. 20
  - b. 30
  - c. 40
  - d. 50

# PRACTICE PROBLEMS



- Average age of a father and his two sons is 27 years. Five years ago, the average age of the two sons was 12 years. If the difference between the ages of the two sons is 4 years, then the present age of the father is:
- a. 34 years
  - b. 47 years
  - c. 64 years
  - d. 27 years

# PRACTICE PROBLEMS



- The average of first three numbers is the double of the fourth number. If the average of all the four numbers is 12, what will be the value of fourth number?
- a.  $6\frac{5}{7}$
  - b.  $7\frac{6}{7}$
  - c.  $6\frac{6}{7}$
  - d.  $7\frac{5}{7}$

# PRACTICE PROBLEMS



- The average age of 12 children is 20 years. If the age of one more child is added, the average decreases by 1. What is the age of the child added later?
- a. 7 years
  - b. 8 years
  - c. 9 years
  - d. CBD

# PRACTICE PROBLEMS



- A said to B “I am twice as old as you were when I was as old you are now.” Sum of their ages is 42. Find their present ages.
- a. 12, 20
  - b. 18, 24
  - c. 16, 26
  - d. 17, 25

# PRACTICE PROBLEMS



- The average weekly salary per head of all employees (supervisors and labourers) is Rs. 100. The average weekly salary per head of all the supervisors is Rs. 600 while the average weekly salary per head of all the labourers is Rs. 75. Find the number of supervisors in the factory if there are 840 labourers in it.
- a. 46
  - b. 42
  - c. 44
  - d. 48

# PRACTICE PROBLEMS



- In a school, there are five friends- A, B, C, D and E. The weight of A is equal to the average weight of B, C and D and the weight of B is equal to the average weight of A, C and D. The average weight of A and C is equal to the average weight of C and D. E is 30 kg heavier than C and the average weight of B and D is 60 kg. What is the average weight (in kgs) of A, B, C, D and E?
- a. 52.5
  - b. 56
  - c. 58.4
  - d. 66
  - e. NOTA

# PRACTICE PROBLEMS



- There are five consecutive even numbers. Each number is multiplied by 2 and then 1, 2, 3, 4 and 5 is added to first, second, third, fourth and fifth number respectively. The new average of the five numbers is 125% more than the original average. What is the difference between the highest and lowest original number?
- a. 12
  - b. 6
  - c. 10
  - d. 8
  - e. 14